

1529

ERT Service Chart

INTEGRATED high quality stereo amplifiers with twin 10W push-pull outputs. Model 222 has all-valve circuit providing input sensitivity 80mV 2megohms for crystal and ceramic pickups. Model 221 has additional transistor preamplifier (two transistors each channel) providing input sensitivity 3.5mV 50K for magnetic pickups.

Mains. 200-250V 40-60c/s. Dual voltage version covers 100-130V AC in addition.

Fuse. 750mA 1½in. glass cartridge HT fuse.

Valves. ECL86 (4), ECC83 (2).

Transistors. BC107 NPN (4) model 221 only.

Rectifiers. RS240 (2) mains rectifiers.

Output. 10W push-pull each channel.

Outlet. 500mV low impedance for tape recorder.

Output impedance. 4, 8 and 16ohms.

Inputs. Model 221: tape monitor (TM) 600mV 100K, tape playback (TP) 80mV 2megohms, radio (R) 80mV 2megohms, pickup 1 (P1), 80mV 2 megohms, pickup 2 (P2) 3.5mV 50K. Model 222: tape playback (TP) 80mV 2megohms, radio 80mV 2megohms, pickup 80mV 2megohms.

Frequency response. 30-20,000c/s \pm 1dB.

Power response. 35-20,000c/s \pm 1dB.

Harmonic distortion. Less than 0.5 per cent at 1kc/s measured at 8W output \pm 1dB.

Hum and noise. 55dB below rated output.

Negative feedback. 15dB.

Transient response. Rise time 6micro-seconds.

Treble control. +15dB, -12dB, at 10kc/s.

Bass control. +12dB, -12dB, at 70c/s.

Rumble filter. -6dB at 35c/s, increasing at lower frequencies.

Crosstalk. Better than 40dB.

Channel matching. \pm 1dB.

Balance control. Range of -10dB each channel.

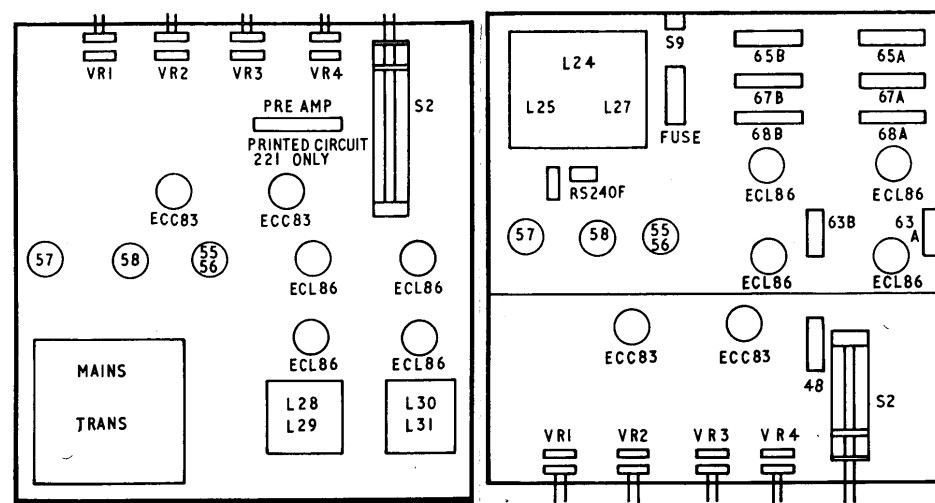
Manufacturer. Armstrong Audio Ltd.

Service department. Warlters Road, Holloway, London N7. Tel.: North 3213.

SERVICE NOTES

Mains connection. It is important to ensure the three-core mains lead is connected correctly; red—live, black—neutral, green—earth.

HT fuse. On no account should a higher



Layout of major components. Left, chassis top view; right chassis underside view

rated fuse than 750mA be fitted. The fuse is located by the mains transformer. To replace, remove polythene holder and slide out fuse.

Speaker connections. Output socket from each amplifier is located in the back of the output transformer. Viewed from the back, channel A is on the right, channel B on the left. Speakers are connected by two-pin plugs (one large pin, one small pin) using the position nearest to the quoted impedance.

To connect 3-4ohm speakers insert plug into lefthand sockets. To connect 8ohm speakers insert smaller pin into centre socket and larger pin into either of the large sockets on each side of it. To connect 15-16ohm speakers insert plugs into righthand sockets.

When one speaker only is to be used it should be connected to output of channel A. Dummy load of 15ohms 10W should be connected across the 15ohms output of the B amplifier.

A third speaker, to prevent "hole-in-the-middle" effects which sometimes occur, may be connected between the two output transformers. Connect the two leads from the speaker, one to each output transformer, according to the speaker impedance. Each

lead should be connected to the live side of the output (small pin).

The result of this form of connection is that a difference signal between right and left channels is applied to the third speaker. On mono with the channels balanced correctly there will be no output from the centre speaker.

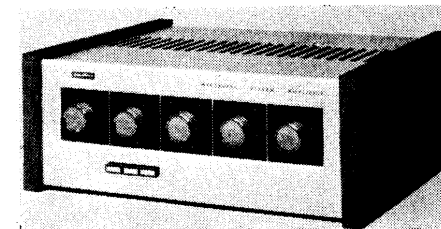
Speaker phasing. When speaker terminals are marked positive and negative, the negative terminals should be connected to the larger pin of the two-pin plugs. When not marked, but are identical speakers, connect the lefthand terminal in each case to the larger pin of the two-pin plugs.

Unmarked and dissimilar speakers must be phased correctly by listening tests for best performance.

Input connections. Stereo connections must be made to both A and B inputs. Mono connections are made to channel A input only. Screened lead, preferably coaxial when long leads are involved, should be used for all inputs.

Input switching. Input sockets automatically switch to their correct function when plug is inserted. Accordingly a mono input, when plugged into an A channel socket, will automatically be fed to both amplifiers.

ARMSTRONG 221, 222



Models are available in cabinet or chassis form

In the case of pickup 1 (221 only), when a mono cartridge is used, in addition to connecting this to channel A, a plug with no connections to it must be plugged into channel B input. With model 221 a mono tape recorder must be connected to both A and B tape playback inputs to achieve an output from both amplifiers.

Pickup input P1. Designed for any ceramic or crystal cartridges. Overload factor is such that pickups with greater than 80mV output will not cause distortion due to overloading.

Pickup input P2 (221 only). Designed for low-output magnetic pickups.

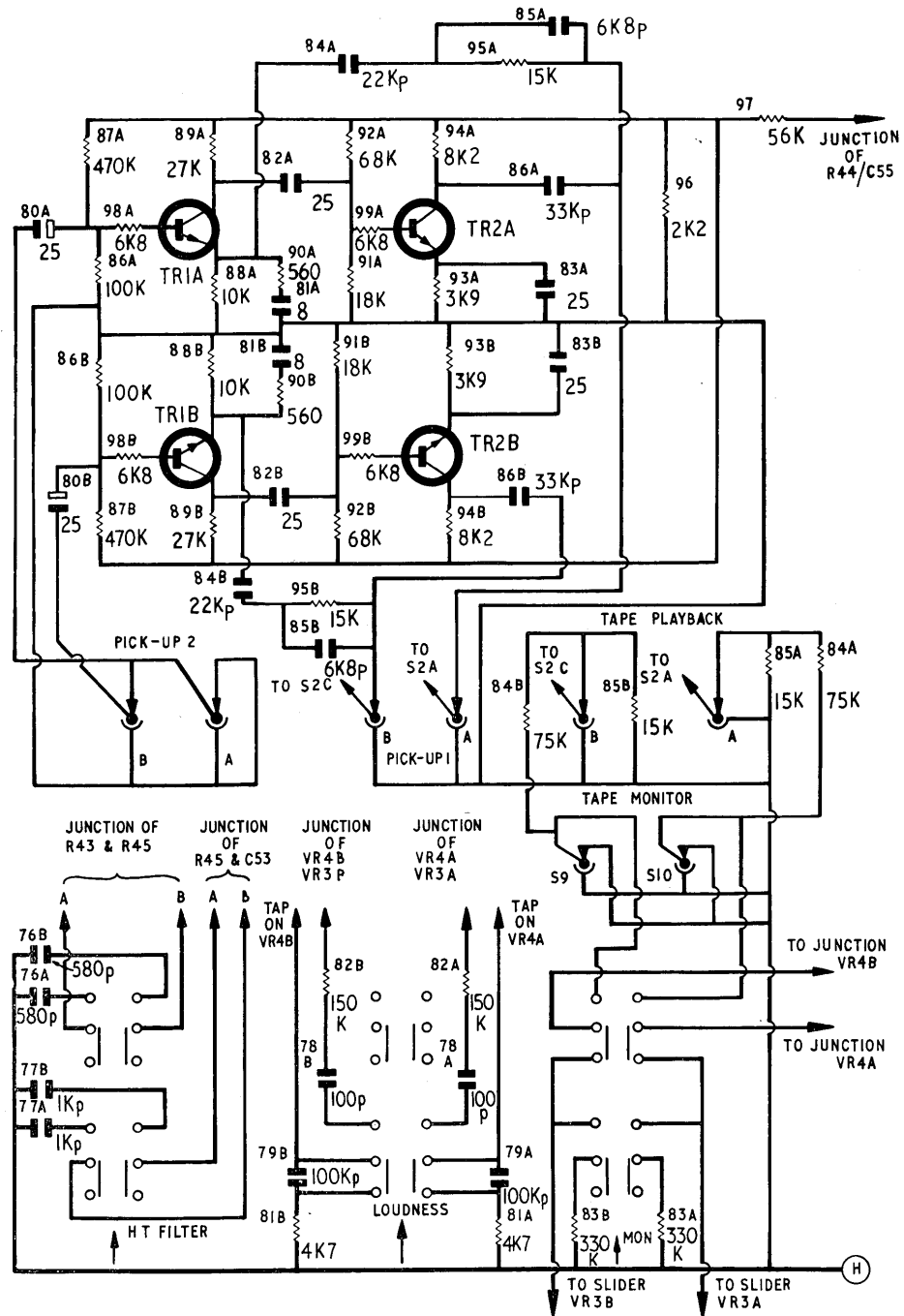
NOTE: Pickup inputs P1 and P2 on model 221 are alternatives. It is not possible to connect a pickup to each input unless a switch is incorporated.

Tape playback input. Intended for playback from complete recorder or tape deck with associated tape pre-amplifier. Will accommodate output from practically all recorders.

Tape monitor input (221 only). For use with tape recorders having provision for monitoring signals from the tape while recording. (NOTE: All models allow signals being recorded to be heard through amplifiers and speakers in the normal way.) When tape monitor button is depressed this normal signal is removed from the amplifier and is replaced by a signal from the recorder reproduced from the tape after recording.

Radio input. Suitable for any radio tuner. Mono output should be fed into channel A input. Two radio inputs are provided to accommodate stereo broadcasts when required.

Circuits overleaf



Additional components in Model 221

